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Evaluation of Commercial Utility of ERTS-S

Imagery in Structural Reconnaissance for

Minerals and Petroleum

ERTS-A Proposal Number

MMC-083

Principal Investigator

PR-181

Reporting Period

May 1, 1973 through June 30, 1973

Prepared by

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E73-10700) EVALUATION OF COMMERCIAL
UTILITY OF ERTS-A IMAGERY IN STRUCTURAL
RECONNAISSANCE FOR MINERALS AND PETROLEUM
Progress Report, 1 (Texas Instruments,
Inc.) 5 p HC \$3.00
CSCL 08G G3/13 00700 Unclas

I. PROGRAM OBJECTIVE

The objective of this study is to evaluate, from the commercial viewpoint, the feasibility of ERTS-A imagery as a medium for interpreting and mapping large-scale structural lineaments in both Precambrian Shield areas and basins containing younger sediments. Successful completion of this program could lead to Continental Plate tectonic interpretation from purchased ERTS-type imagery which would be useful to mining or petroleum companies for guiding and/or interpreting reconnaissance prospecting operations.

II. SUMMARY OF WORK (MAY 1 - JUNE 30, 1973)

During this reporting period lineament interpretations have been performed on areas 1, 2 and 3 (i.e., Montana, Colorado and New Mexico - Texas areas). While waiting for complete coverage of areas 4 and 5 (Superior Providence of Canada and Northern Alaska) additional study was undertaken on areas 2 and 3 which included establishment of correlations between lineament selections from ERTS imagery, published lineament and fracture zones, and known mining areas.

Good coverage in areas 4 and 5 has been slow in arriving. Therefore mosaics of these areas could not be completed as planned. It is hoped that good images will soon arrive to fill the gaps that presently exist so that interpretations in these areas can be undertaken in the very near future.

Some preliminary contacts were made with selected mining and petroleum companies to determine their initial reaction to the use of lineament mapping from ERTS imagery to guide their prospecting operations. These contacts already have resulted in one commercial interpretation contract with an oil company utilizing imagery purchased separately from the EROS Data Center.

III. WORK SCHEDULE

During the next reporting period (July - August) interpretation refinements will continue in areas 1, 2 and 3. In addition comparative applicability of the four MSS bands and seasonal effects on lineament interpretations will be assessed within a limited zone of one selected area.

As soon as a complete set of acceptable prints or transparencies are received for areas 4 and 5 mosaics will be prepared and lineament interpretations will begin on these two final areas.

In the September-October period a brief economic analysis will be completed and final conclusions will be drawn regarding the utility of ERTS imagery in structural reconnaissance for minerals and petroleum. Work on the final report will also be initiated.

IV. PROBLEMS

An incremental funding commitment which was due at the end of April still had not been received at the end of this reporting period.*

The delays in receiving a complete set of prints for mosaicing in areas 4 and 5 have been disappointing and we can only hope that this situation will clear up in the near future so that we may procede with work on those areas.

V. PLANS FOR NEXT REPORTING PERIOD

If suitable prints are received, the mosaics in areas 4 and 5 will be completed and lineament interpretations undertaken.

- * Update: A wire was received on July 2, 1973 committing the incremental funding.

VI. SIGNIFICANT RESULTS

As work progresses in areas 2 and 3 (Colorado and New Mexico - Texas) continuing correlations are observed between lineaments selected from the ERTS imagery and known fault and fracture zones. Also there continues to be a striking correlation between lineament intersectional areas and known mining areas.

Initial contacts with mining and/or petroleum companies regarding the use of ERTS imagery as an interpreted medium for guiding reconnaissance operations seems to indicate that the technology and economics will be commercially acceptable for initial investigatory investments.

VII. PUBLISHED ARTICLES

None during this reporting period.

VIII. CHANGE RECOMMENDATIONS

None during this reporting period.

IX. CHANGES IN STANDING ORDER FORMS

None

X. DESCRIPTOR FORM INCLUSIONS

None.

XI. PERSONNEL CHANGES

None.

XII. ADEQUACY OF FUNDS

Now adequate (see Section IV above)